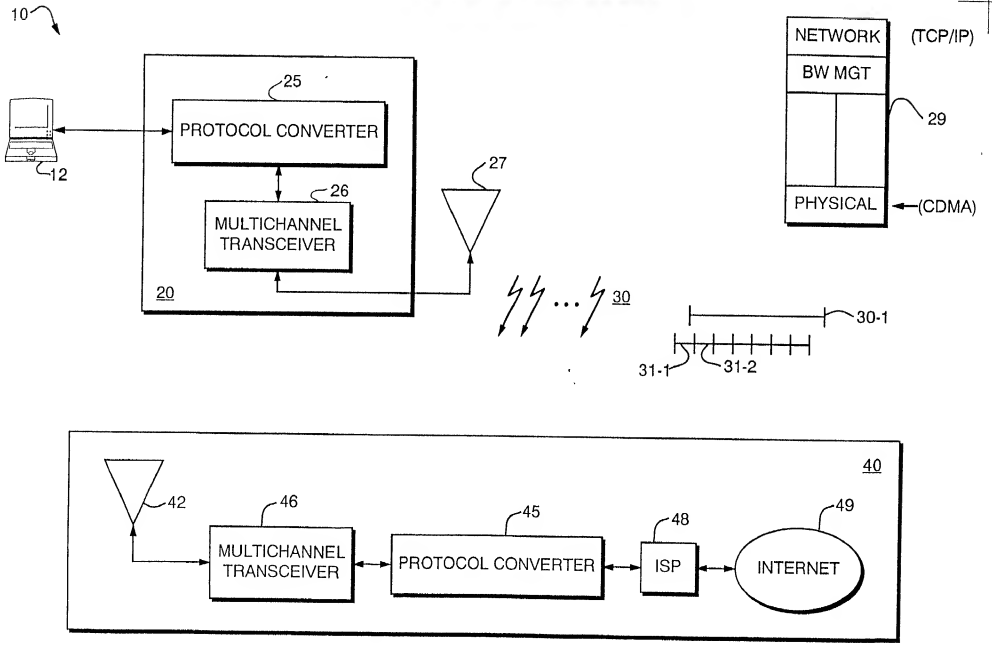


FIG. 1

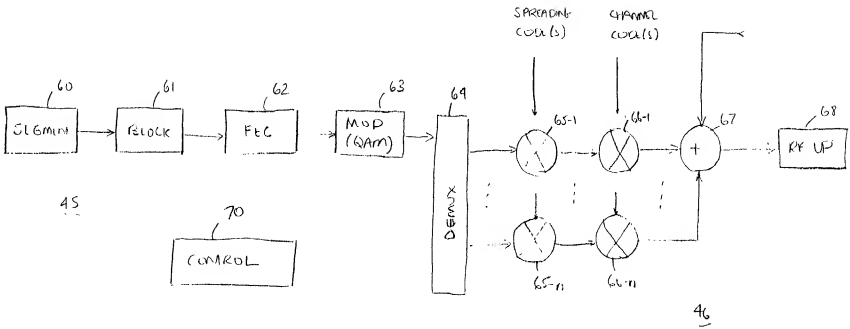


FIG 2

$$\text{data rate} = \frac{\text{chip rate}}{\text{chips per symbol}} \cdot (\#\text{ bits per symbol}) \cdot \#\text{ code words per correction} \cdot \left(\frac{\text{information blocksize}}{\text{FEC blocksize}}\right)$$

1.2288 MHz

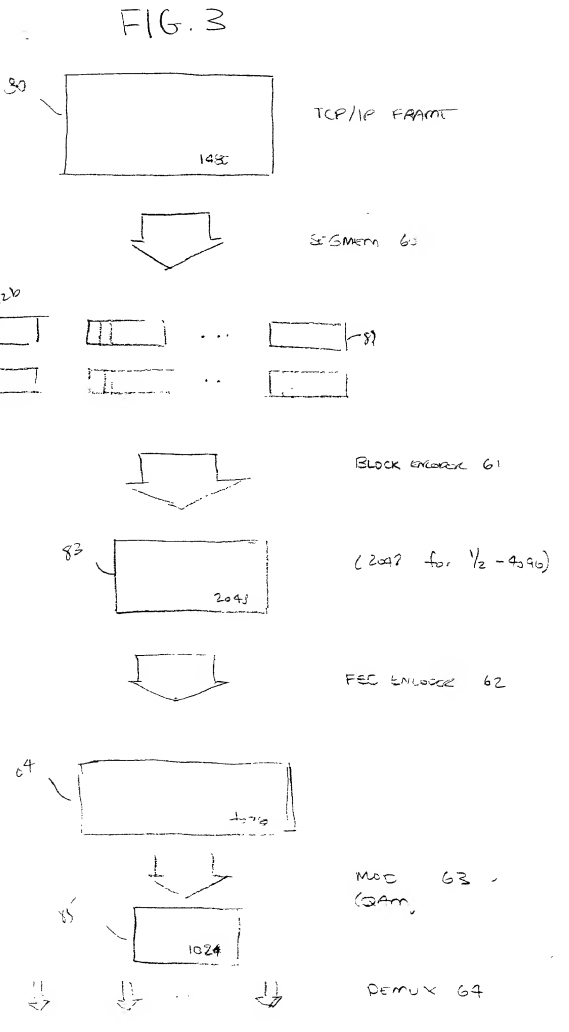
SF

QPSK: 2
8PSK: 3
16QAM: 4
64QAM: 6

2, ..., 28

$\left(\frac{1}{3}\right), \left(\frac{1}{2}\right), \left(\frac{4}{5}\right)$
OR
$\left(\frac{1}{3}\right), \left(\frac{7}{3}\right)$

FIG. 3


TCP/IP FRAME
SEGMENT 61
BLOCK ENCODE 61
(2047 for 1/2 - 4096)
FEC ENCODE 62
MOD 63 - QAM
DEMUX 64
1496
1024

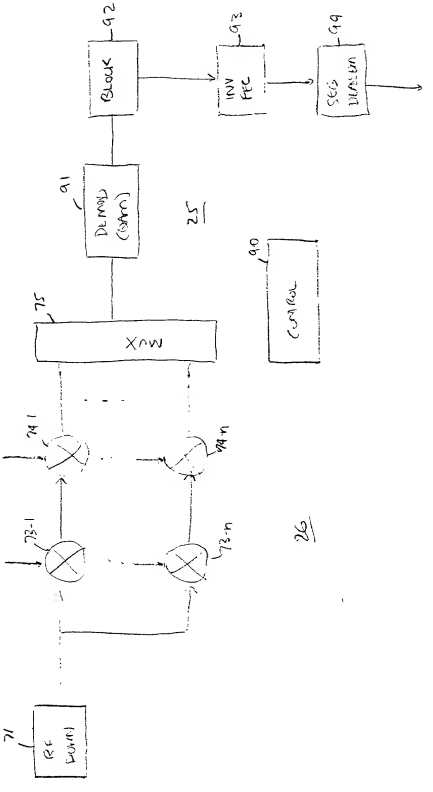

71
RF Front
73-1
73-n
74-1
74-n
75
MUX
91
DEMOD (OFDM)
92
BLOCK
93
INV FFT
94
SYS DEMUX
90
CONTROL
25
26
DESIRED CHANNEL

FIG. 4

Mod	64	64	64	16	16	16	8	8	8	4	4	4	
Info	3249	2028	1331	3249	2028	1331	3249	2028	1331	3249	2028	1331	
Size	4096	4096	4096	4096	4096	4096	4096	4096	4096	4096	4096	4096	
Channel Codes													
2	0.366	0.228	0.150	0.244	0.152	0.100	0.183	0.114	0.075	**0.122**	0.076	0.050	
4	0.731	0.456	0.299	0.487	0.304	0.200	0.366	0.228	0.150	**0.244**	**0.152**	0.100	
6	1.097	0.684	0.449	0.731	0.456	0.299	0.548	0.342	0.225	**0.366**	**0.228**	0.150	I-CDMA
8	1.462	0.913	0.599	0.975	0.608	0.399	0.731	0.456	0.299	0.487	0.304	0.200	
10	1.828	1.141	0.749	1.218	0.761	0.499	0.914	0.570	0.374	0.609	0.380	0.250	
12	2.193	1.369	0.898	1.462	0.913	0.599	1.097	0.684	0.449	0.731	0.456	0.299	
14	2.559	1.597	1.048	1.706	1.065	0.699	1.279	0.799	0.524	0.853	0.532	0.349	
16	2.924	1.825	1.198	1.949	1.217	0.799	1.462	0.913	0.599	0.975	0.608	0.399	
18	3.290	2.053	1.348	2.193	1.369	0.898	1.645	1.027	0.674	1.097	0.684	0.449	
20	3.655	2.282	1.497	2.437	1.521	0.998	1.828	1.141	0.749	1.218	0.761	0.499	
22	4.021	2.510	1.647	2.680	1.673	1.098	2.010	1.255	0.824	1.340	0.837	0.549	
24	4.386	2.738	1.797	2.924	1.825	1.198	2.193	1.369	0.898	1.462	0.913	0.599	
26	4.752	2.966	1.947	3.168	1.977	1.298	2.376	1.483	0.973	1.584	0.989	0.649	
28	5.117	3.194	2.096	3.411	2.129	1.398	2.559	1.597	1.048	1.706	1.065	0.699	

Table 1 - Theoretical Effective Information Bit Rate (Mbps) for 4096 Block Size

FIG. 5

Proposed 'I-CDMAximum' physical layer using various numbers of codes and code rates with **2048** block size.

	Mod	64	64	64	16	16	16	8	8	8	4	4	4
	Rate	1482	858	684	1482	858	684	1482	858	684	1482	858	684
	Size	2048	2048	2048	2048	2048	2048	2048	2048	2048	2048	2048	2048
	Codes												
	2	0.333	0.193	0.154	0.222	0.129	0.103	0.167	0.097	0.077	0.111	0.064	0.051
	4	0.667	0.386	0.308	0.445	0.257	0.205	0.333	0.193	0.154	0.222	0.129	0.103
	6	1.000	0.579	0.462	0.667	0.386	0.308	0.500	0.290	0.231	0.333	0.193	0.154
	8	1.334	0.772	0.616	0.889	0.515	0.410	0.667	0.386	0.308	0.445	0.257	0.205
	10	1.667	0.965	0.770	1.112	0.644	0.513	0.834	0.483	0.385	0.556	0.322	0.257
	12	2.001	1.158	0.923	1.334	0.772	0.616	1.000	0.579	0.462	0.667	0.386	0.308
	14	2.334	1.351	1.077	1.556	0.901	0.718	1.167	0.676	0.539	0.778	0.450	0.359
	16	2.668	1.544	1.231	1.778	1.030	0.821	1.334	0.772	0.616	0.889	0.515	0.410
	18	3.001	1.737	1.385	2.001	1.158	0.923	1.501	0.869	0.693	1.000	0.579	0.462
	20	3.335	1.931	1.539	2.223	1.287	1.026	1.667	0.965	0.770	1.112	0.644	0.513
	22	3.668	2.124	1.693	2.445	1.416	1.129	1.834	1.062	0.846	1.223	0.708	0.564
	24	4.001	2.317	1.847	2.668	1.544	1.231	2.001	1.158	0.923	1.334	0.772	0.616
	26	4.335	2.510	2.001	2.890	1.673	1.334	2.167	1.255	1.000	1.445	0.837	0.667
	28	4.668	2.703	2.155	3.112	1.802	1.436	2.334	1.351	1.077	1.556	0.901	0.718

- Theoretical Effective Information Bit Rate (Mbps) for 2048 Block Size

FIG 6

Proposed 'I-CDMAximum' physical layer using various numbers of codes and code rates with **1024** block size.

Mod	64	64	16	16	8	8	4	4
Info	676	363	676	363	676	363	676	363
Size	1024	1024	1024	1024	1024	1024	1024	1024
Codes								
2	0.304	0.163	0.203	0.109	0.152	0.082	0.101	0.054
4	0.608	0.327	0.406	0.218	0.304	0.163	0.203	0.109
6	0.913	0.490	0.608	0.327	0.456	0.245	0.304	0.163
8	1.217	0.653	0.811	0.436	0.608	0.327	0.406	0.218
10	1.521	0.817	1.014	0.545	0.761	0.408	0.507	0.272
12	1.825	0.980	1.217	0.653	0.913	0.490	0.608	0.327
14	2.129	1.143	1.420	0.762	1.065	0.572	0.710	0.381
16	2.434	1.307	1.622	0.871	1.217	0.653	0.811	0.436
18	2.738	1.470	1.825	0.980	1.369	0.735	0.913	0.490
20	3.042	1.634	2.028	1.089	1.521	0.817	1.014	0.545
22	3.346	1.797	2.231	1.198	1.673	0.898	1.115	0.599
24	3.650	1.960	2.434	1.307	1.825	0.980	1.217	0.653
26	3.955	2.124	2.636	1.416	1.977	1.062	1.318	0.708
28	4.259	2.287	2.839	1.525	2.129	1.143	1.420	0.762

(NO 4/5 EQUIVALENT RESULT)

Theoretical Effective Information Bit Rate (Mbps) for 1024 Block Size

FIG. 7